

Only qualified personnel should perform maintenance.



Be sure that system pressure has been VENTED prior to disassembly.

All instructions, illustrations and item numbers refer to the manual operated regulator, KR-150 "D". Refer to specific installation drawing for corresponding items.

Repair Procedure

Preparation

1. Prepare a clean surface for disassembly; free of dust, grease, grit, etc. A vise is not necessary, but helpful. Have rags, degreasing solvent and lubricant available.
2. Critical surfaces to protect during disassembly are the inside diameter of the Piston Guide (30), the inside diameters of the Seal Container (28), the lapped sealing surfaces of the Seal Rings (11 and 13) and the lapped surfaces of the Flow Plates (23 and 24). Lapped surfaces must always be stored facing up and must NEVER come in contact with any hard surface.
3. All O-rings and back-up rings are recommended to be replaced at the very least. See the parts list for kit contents.
4. Standard tools required are a 5/16" hex key, 3/16" hex key, wire cutters, hammer, and punch.
5. Special tools used in "Reassembly" are: a blunt ended rod for seating back-up rings (Step 4), medium strength (blue) threadlocker (Step 3 and 7), and a flat spacer about 3/32" thick for assembling the Main and Blind Flanges (Steps 8 and 10).



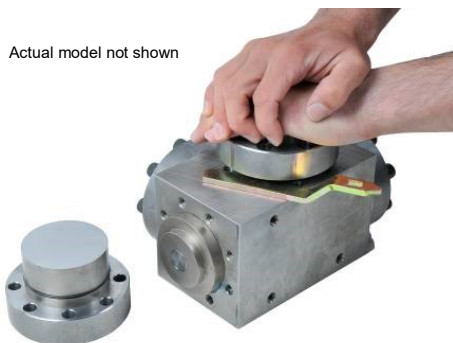
Disassembly

1. To relieve the compression on the internal operator springs (20 and 21) loosen the Locking Handle (17) and rotate the Adjusting Handle (18) counter-clockwise (up) until the resistance is fully relieved. Springs must be loose to safely remove the Adjustment Head (27).
2. With a 5/16" hex key, loosen and remove the socket head cap screws (34) affixing the Adjustment Head. Remove the Adjustment Head/internal operator assembly by lifting, tilting and holding the Spring Plate (16) to clear the Piston Guide (30). Remove the Springs (20 and 21), Spring Guide (25) and Spring Plate. Clean barrel and all parts.
3. Remove the screws (34) from the Inlet & Vent Flanges (31) using a 5/16" hex key. Carefully remove said Flanges and attached Flow Plates.
4. Remove the Flow Plates (23 and 24) from the Flanges by unfastening the screws (33) with a 3/16" hex key. **Always store Flow Plates with lapped surface facing UP.**
5. From both sides of the Body (26), remove the Seal Rings (11 and 13), Valve Cage (14) and springs (12 and 15) from the Seal Container (28). Carefully set these aside. **Always store Seal Rings with lapped surface facing UP.**
6. Unfasten the remaining screws holding the Lower Flange (22) and Outlet Flange (32) then remove said flanges.
7. Using a soft tool, lightly tap the bottom of the Seal Container to loosen the Piston Guide (30) from the Body. Lift this assembly through the top of the Body.
8. Remove the Piston (29) from the Seal Container (28) by removing the piston retaining Screw (36). Take care not to scratch the Piston or the bores of the Seal Container.
9. Remove all O-rings and back-up rings (to be discarded). Clean all parts with a degreaser and wipe with clean rags.
10. Inspect all lapped surfaces for scratches, dings or dull spots that would prevent them from reuse. Inspect the bores of the Seal Container, Body, and Piston Guide for linear scratches that would propagate leaks.

Reassembly

1. Before replacing the seals and rebuilding the regulator, apply a light coating of lubricant.
2. Replace all O-rings and back-up rings on Seal Rings, Flow Plates, Piston, Piston Guide and Flanges, lubricating generously.
3. Install the Piston on the Seal Container. Apply medium strength threadlocker to the threads of the piston retaining screw (36) then fasten.
4. Install the Seal Rings, one Wave Spring and Valve Cage from one side of the Seal Container; ensuring to take care to not scratch the sealing surfaces of both parts. If the back-up ring catches, then use a soft and blunt tool to help compress it around the Seal Ring while installing it in the Seal Container. From the opposite side, install the remaining Wave and Compression Spring (15 and 12) before installing the final Seal Rings.
5. Slide the Piston Guide over the Piston until it is snug with the O-ring and back-up rings of the Piston.
6. Slide the Seal Container assembly down into the top of the Body, making sure that the Seal Container faces are parallel with the opposing ports and the notch faces the outlet (in the orientation shown in the drawing).

7. Install the Flow Plates with lubricated O-rings (2) on their respective Flanges, using the screws (33) and medium strength (blue) threadlocker. Ensure that the Flanges are oriented as shown in the drawing. The Inlet & Vent Flanges (31) must have the O-ring (6) seated in the face groove before fastening to the Supply and Vent Flow Plates. Use rags to protect the lapped surface and edges of the Flow Plate.
8. Important! To protect the Seal Rings in the Seal Container during reassembly, ease the Vent Flow Plate (with Flange) into the Body using a 3/16" thick spacer between the Flange and the Body to prevent over-travel. Orient the Flange so that the screws (33) are parallel with the bottom of the Body. Remove the spacer.
13. Reassemble the internal operator Springs, Spring Plate, and Spring Guide into the barrel of the Adjustment Head using a light coat of grease. Lower the operator assembly with screws onto the body and evenly tighten the screws.
14. Rotate the Handle down to its original position and tighten the Locking Handle to it. The regulator is now ready for normal operation. Some adjustment of the operator may be necessary to achieve the desired output. To increase or decrease pressure, rotate the Adjusting Handle clockwise or counter-clockwise, respectively. Always tighten the Locking Handle to the Adjusting Handle after setting the regulator.



9. Insert the screws (37) and tighten evenly around the Flange in a star pattern. The Flow Plate should be in light contact with the Seal Rings.
10. Important! In the same manner as Step 8, install the opposite Flange with Vent Flow Plate using the spacer to prevent the Flow Plate from hitting the Seal Rings. Orient the Flange before seating it against the Seal Rings. Evenly tighten all screws using a star pattern.
11. Repeat Steps 8-10 for the Supply Flow Plates and Flanges.
12. Install the Outlet Flange and Lower Flange with their O-rings (1 and 3), evenly tightening all screws.

Maintenance

ShearFlo® Regulators require little maintenance other than the inspections and refurbishment described here, dependent on usage and system condition.

| Kit Key | Kit Description | Kit Part No. |
|---------|------------------|--------------|
| a | O-ring Kit | 40-1540 |
| b | Seal Kit | 40-1568 |
| c | Minor Repair Kit | 40-1541 |
| d | Major Repair Kit | 40-1686 |

| Item No. | Part No. | Description | Qty. | Kit |
|----------|----------|--------------------------|------|-----|
| 1 | 23-1126 | O-ring | 1 | a |
| 2 | 23-1263 | O-ring | 4 | a |
| 3 | 23-1319 | O-ring | 2 | a |
| 4 | 23-1322 | Backup Ring | 4 | a |
| 5 | 23-1323 | O-ring | 6 | a |
| 6 | 23-1325 | O-ring | 4 | a |
| 7 | 23-1331 | Backup Ring | 2 | a |
| 8 | 23-1332 | O-ring | 1 | a |
| 9 | 23-1333 | O-ring | 1 | a |
| 10 | 23-1334 | O-ring | 1 | a |
| 11 | 40-0014 | Seal Ring, Supply | 4 | b |
| 12 | 40-0110 | Compression Spring | 2 | b |
| 13 | 40-0113 | Seal Ring, Vent | 2 | b |
| 14 | 40-0114 | Valve Cage | 1 | b |
| 15 | 40-0115 | Wave Spring | 2 | b |
| 16 | 40-0134 | Spring Plate | 1 | |
| 17 | 40-0135 | Locking Handle | 1 | |
| 18 | 40-0136 | Adjusting Screw & Handle | 1 | |
| 19 | 40-0140 | Plug, Adjustment Head | 1 | |
| 20 | 40-0143 | Spring, Outer | 1 | |
| 21 | 40-0144 | Spring, Inner | 1 | |
| 22 | 40-0197 | Flange, Lower | 1 | |
| 23 | 40-0285 | Flow Plate, Supply | 2 | c |
| 24 | 40-0286 | Flow Plate, Vent | 2 | c |
| 25 | 40-0300 | Spring Guide | 1 | |
| 26 | 40-0323 | Body | 1 | |
| 27 | 40-0383 | Adjustment Head | 1 | |
| 28 | 40-0714 | Seal Container | 1 | d |
| 29 | 40-0717 | Piston | 1 | |
| 30 | 40-0718 | Piston Guide | 1 | |
| 31 | 40-1383 | Flange, Inlet & Vent | 4 | |
| 32 | 40-1384 | Flange, Outlet | 1 | |
| 33 | 50-0066 | Bolt, SHCS | 8 | b |
| 34 | 50-0069 | Bolt, SHCS | 56 | |
| 35 | 50-0239 | Grip, Handle | 3 | |
| 36 | 50-0331 | SHCS | 1 | |

